Volunteer Lake Assessment Program Individual Lake Reports

PEA PORRIDGE POND, BIG, MADISON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,431	**Max. Depth (m):**	13.7	**Flushing Rate (yr^{1})**	1.5
Surface Area (Ac.):	142	**Mean Depth (m):**	4	**P Retention Coef:**	0.63
Shore Length (m):	3,900	**Volume (m^3):**	2,295,500	**Elevation (ft):**	648

TROPHIC CLASSIFICATION

Year	Trophic class
1979	MESOTROPHIC
2001	OLIGOTROPHIC

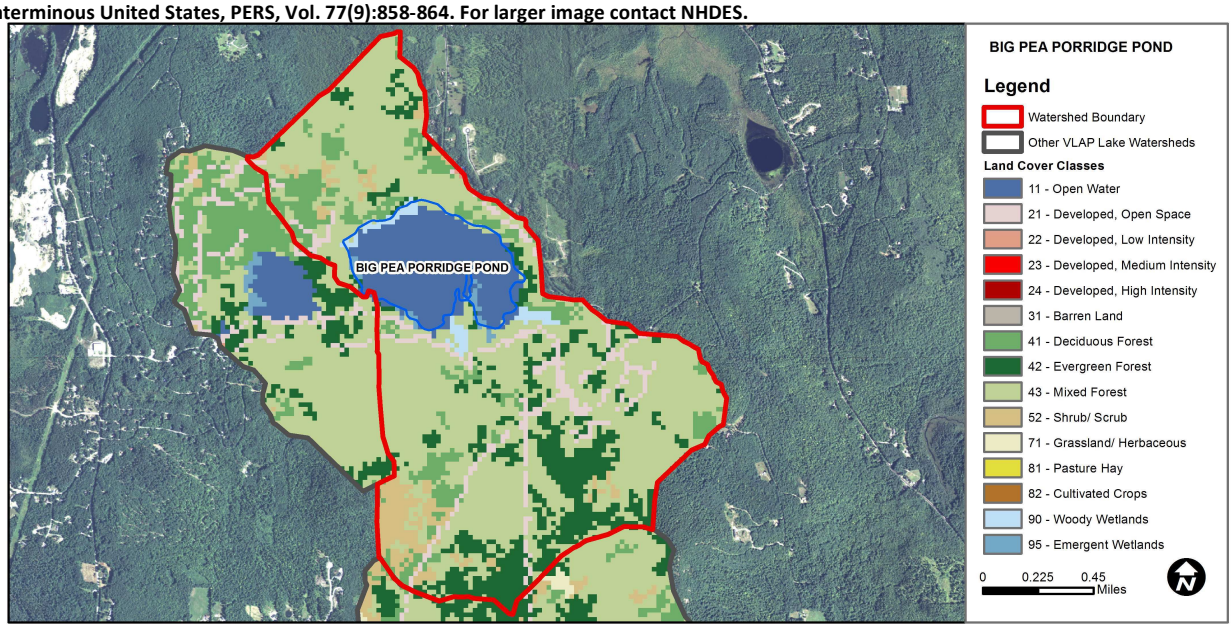
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	11.6	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	5.48	Deciduous Forest	8.39	Pasture Hay	0
Developed-Low Intensity	0.05	Evergreen Forest	14.52	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	53.29	Woody Wetlands	1.33
Developed-High Intensity	0	Shrub-Scrub	4.71	Emergent Wetlands	0.66

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
BIG PEA PORRIDGE POND, MADISON, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were slightly higher in June, but decreased in July and August and were below the NH lake median. Historical trend analysis indicates a relatively stable chlorophyll level since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were slightly higher in Big Rock Inlet likely due to road salting impacts from Rt. 153. Deep spot conductivity was average for NH lakes.
- **E. COLI:** E. coli levels were well below state standards for public beaches.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low and well below the NH lake median. Historical trend analysis indicates a relatively stable phosphorus level since monitoring began.
- **TRANSPARENCY:** Transparency was lower than 2010 and 2011 levels but slightly greater than the NH lake median. Historical trend analysis indicates a significantly decreasing (worsening) transparency since monitoring began.
- **TURBIDITY:** Turbidity was elevated in Big Rock Inlet in June and August, and Muddy Beach Inlet in July likely due to low flow conditions and sediment and/or organic materials. Hypolimnetic (lower water layer) turbidity was slightly elevated in July and August, potentially due to natural processes or bottom sediments.
- **PH:** pH levels were slightly lower than desirable at the deep spot and some tributaries.
- **RECOMMENDED ACTIONS:** The worsening transparency trend is a concern and may be caused by an increase in suspended sediments from stormwater runoff. Identify potential areas in the watershed that may be subject to stormwater erosion and implement best management practices to reduce sediment input to the pond. Educate watershed residents on ways to reduce stormwater runoff from their properties utilizing DES' "NH Homeowner's Guide to Stormwater Management". Keep up the great work!

Table 1. 2012 Average Water Quality Data for BIG PEA PORRIDGE POND

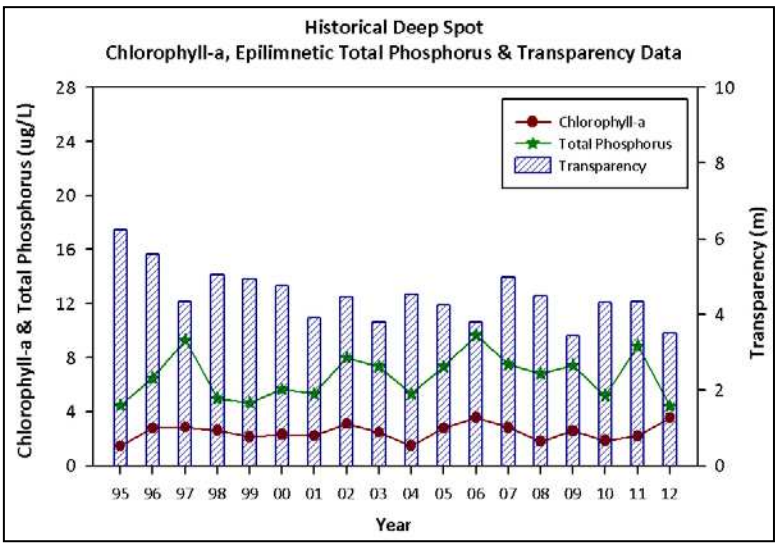
Station Name	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
Big Rock Inlet			11	74.8		10			2.53	6.36
Deep Epilimnion	3.73	3.53	6	48.5		4	3.50	4.27	0.84	6.66
Deep Metalimnion				50.0		8			1.09	6.33
Deep Hypolimnion				53.2		10			1.82	6.02
Muddy Beach Inlet			5	45.0		8			1.87	6.31
Outlet				48.8		6			0.93	6.64
Shore Beach					7					
Thusis Beach					3					

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Stable	Data not significantly increasing or decreasing.
Transparency	Worsening	Data significantly decreasing.
Phosphorus (epilimnion)	Stable	Data not significantly increasing or decreasing.



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